

Does Physical Capital And Economic Growth Can Reduce Poverty In The Autonomous Regions?

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ABSTRACT: The purpose of this research is about determining poverty, specifically the role of physical capital represented by education and health in the autonomous regions of Central Java. The regression panel for data analysis is the analytical tool in this study. An interesting finding in this study was the physical model that had an important role in poverty assessment in the autonomous regions in Central Java during the observation period. Based on the regression results of the data panel, education and health which are the proxy of capital show a significant negative effect on the poverty level, while economic growth does not affect.

KEYWORDS: *Poverty, Physical Capital, Economic Growth, Autonomous.*

I. INTRODUCTION

The main and fundamental problem in population in Indonesia is the problem of poverty, inequality, and high unemployment. Poverty is a problem that involves many aspects because it is related to a lack of income and adequate productive resources to ensure survival; hunger, and malnutrition, poor health, limited access to education and other basic services, increased morbidity and increased mortality from illness, homelessness and inadequate housing, unsafe environments, and social discrimination and exclusion.

Indonesia has implemented regional autonomy since 2001 (based on Law No. 22 of 1999 concerning Regional Government). Since the enactment of regional autonomy, problems have not yet been resolved in Indonesia, especially poverty. Based on table 1 shows interesting things about the percentage of poverty in all regions of Indonesia which has decreased, but some regions have experienced an increase in the number of poor people. Furthermore, that the Western Region of Indonesia has a greater number of poor people than the Eastern Region of Indonesia, but the poverty rate in the Eastern Region of Indonesia is higher than the Western Region of Indonesia.

Table 1. Number of Poor Population and Percentage of Poverty According to Island Semester 2 (September)

Island	2013		2017	
	Thousand (people)	%	Thousand (people)	%
Sumatera	6.190,06	11,03	5.969,11	10,04
Jawa+Bali	15.733,46	9,42	14.112,94	8,16
Nusa Tenggara	1.811,60	18,75	1.882,86	18,22
Kalimantan	978,71	10,60	988,48	10,06
Sulawesi	2.139,58	12,85	2.107,63	11,98
Maluku	408,33	13,46	398,70	12,37
Papua	1.292,21	29,34	1.123,28	25,44
Western Indonesia	21.923,52	10,22	20.082,05	9,10
Eastern Indonesia	6.630,43	17,00	6.500,95	15,61
Indonesia	28.553,95	11,47	26.583,00	10,12

Source: Statistics Indonesia, Various Years (processed)

The surprising fact is that Java, which is one of the largest economic centers in Indonesia, contributes the largest number of poor people, but the poverty rate shows the lowest compared to other regions (table 1). In the Bappenas^[1] report regarding the results of the evaluation of the 2010-2014 RPJMN, the Central Java province was one of the seven Provinces that was of particular concern in development. The determination of the province is one of them based on the high percentage of the poor

As one of the Provinces that is concerned with the problem of poverty, Central Java Province has a fairly high poverty rate. Although the poverty rate in Central and National Java tends to decrease, however, the poverty rate in Central Java has a higher level than the National level. These problems can be seen in Figure 1

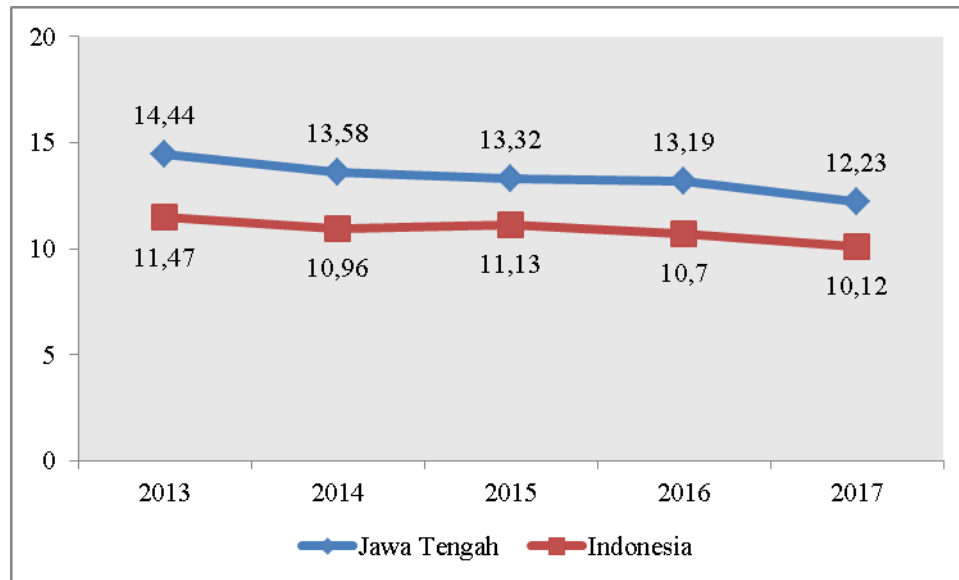


Figure 1. Central Java Poverty Percentage to National, Semester 2 (September) 2013-2017

Source: Statistics Indonesia, Various Years (processed)

There are three things about poverty. First, differences in ownership of natural resources that result in differences in income, second, the quality of human resources (productivity, income, etc.) that differ from one another can indicate poverty, and third, differences in access to capital. The three causes of poverty can be explained further by what is known as the vicious circle of poverty. In developing countries, in particular, traits in the vicious circle of poverty, until now there are still many things happening. The difficulty for the community to get out of this vicious circle is homework both for individuals, institutions or community organizations and especially for the government. One measure that can measure the success of a government is the government's effort to reduce poverty to the lowest level. The government with all instruments and policies taken must aim to cut the vicious circle and improve welfare for the community and create sustainable development^[2].

The circle of poverty traps shows a series of forces that influence each other in such a way as to create a situation where a country will remain poor and will continue to experience many difficulties in achieving a higher level of development. This condition is associated with capital formation problems in developing countries.^[3] In addition, cultural elements also show the linkages to a poverty process.^[4] Achieving the level of population welfare in the concept of economic development certainly involves many factors^[5].

Factors that are the causes of poverty such as socio-economic problems^[6]. From the social side, one of them is human capital in terms of education and health^[7,8]. Education is one of the basic human capital that must be fulfilled to achieve sustainable economic development. Improving the quality of human resources also starts with development efforts in the field of education^[9]. Education becomes a pioneer in the future development of the nation because quality and quality education can determine the quality of development. Higher education will provide a good opportunity in obtaining employment so that it can earn income to meet basic life needs^[7,10]. In addition, the low quality of health is seen as a cause of poverty^[6]. Health is one of the basic needs of the community. Improving health services will be an investment in human resources to achieve prosperity. A good health condition is able to work and increase productivity, thus earning income to meet basic needs.

From an economic standpoint, economic growth is an indicator to see the success of development and is a condition for reducing poverty. The results of economic growth must spread in every community group, including the poor population. The Kuznets hypothesis states that poverty and growth have a very strong correlation because in the early stages of the development process poverty levels tended to increase and at the

approach of the final stage of development the number of poor people gradually decreased^[11,12]. The paradox of the relationship between poverty and economic growth can indeed occur. High economic growth does not necessarily reduce poverty. This can happen because the government policy is made not by the pro-poor but pro-rich. In addition, the high level of corruption and poor governance can also be a trigger for increasing poverty^[13].

The problem of poverty is one of the fundamental problems faced by every province in Indonesia, not least in Central Java Province. The poverty rate in districts and cities in Central Java is an aggregate poverty level and most poverty levels are still high. Therefore, a more in-depth study of determinants in combating poverty is needed, specifically the role of physical capital that is proxied with education and health in the autonomous regions of Central Java.

II. RESEARCH METHOD

The positivist approach describes the researcher starting with a causal relationship that is logically taken from the law of causation in general theory. This approach logically links abstract ideas with precise measurements in the social world. Researchers remain separate, neutral and objective when measuring various aspects of social life, investigating the evidence and making replicas of other people's research. All processes lead to empirical testing and confirmation of theory in social life. In general, the positivist perspective uses a deductive direction^[14].

Neuman^[14] explains that an approach with deductive direction can develop and assert a theory that starts with abstract concepts and theoretical relationships and leads to more concrete empirical evidence. Therefore, this study uses a positivist perspective with a deductive approach.

The type of data used in this study is secondary data with data panels, namely 35 districts and cities in Central Java in 2011-2016. Sources of data from previous studies, reports, and agencies such as the Central Statistics Agency. Dependent on this study is the poverty rate in units of percent. The types of poverty and measurements issued by the Statistics Indonesian are based on the concept of capability in meeting basic needs approaches. There are three independent variables. First, economic growth is the development of activities in an economy where the production of goods and services is experiencing an increase that is used for community prosperity. One measure of economic growth is the Gross Regional Domestic Product (GRDP). Gross Regional Domestic Product is one indicator to determine economic conditions in a region for a certain period. Economic growth is the percentage growth in Gross Regional Domestic Product at constant prices in percent. Second, old school expectations are a measure of education. This indicator is used to determine the condition of the construction of the education system at various levels, which is shown in the form of the length of education that each child is expected to achieve. Third, life expectancy at birth or can be said to represent the dimensions of longevity and healthy life is a measure of health. Life expectancy reflects the degree of public health in an area, both from infrastructure, access, and quality of health. In other words, indirectly, increasing life expectancy illustrates the degree of public health getting better in all aspects of health. The unit of life expectancy in years.

The analysis technique used in the study is panel data regression. Panel data is done by stacking time series observations with individuals (cross section) or a combination of time series data and cross-section. In this study panel data used included a balanced type of short panel because the number of cross sections (N) was greater than the time period (T) and each subject had the same number of observations. The panel data model is a model equation by combining times series and cross-section data, so the model can be written as follows^[15]:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \mu_{it} \quad (1)$$

where, $i = 1, 2, \dots, N$; $t = 1, 2, \dots, T$; Y = dependent variable; X = independent variable; N = number of observations; T = amount of time; and $N \times T$ = the number of panel data.

Panel data regression analysis is used to analyze the determinants of poverty levels. The general panel data regression model above for this study was formed from equation 1 which can be formulated as follows:

$$POVR_{it} = \beta_0 + \beta_1 AHH_{it} + \beta_2 HLS_{it} + \beta_3 EG_{it} + u_{it} \quad (2)$$

where the POVR is the level of poverty; AHH is life expectancy; HLS is the old school expectation; EG is economic growth; i shows 35 districts/cities in districts and cities in Central Java ($i = 1, 2, 3 \dots 35$) and t shows the year of observation ($t = 2011, \dots, 2016$).

There are three-panel data methods that can be used and one of the best methods must be chosen for this research. The method in question is the Pooled Ordinary Least Square / PLS Method, Fixed Effect Model / FEM, and Random Effect Model / REM. Determination of the best estimation model from the estimation results of PLS, FEM, and REM used Chow test, Hausman test, and Langrange Multiplier test^[15].

The selected model needs to be carried out by other supporting test stages, but the next step is to test the classic assumption, test the goodness of fit and test the effect validity to see the accuracy of the regression function in assessing the actual value. Not all classic assumption tests are carried out in each regression model, especially in the panel data regression model. The use of panel data has advantages compared to time series data or cross section. As for the advantages of panel data, The combination of times series and cross section member observations has more information, variation, less collinearity between variables, more efficient and more degree of freedom. Therefore there is no need to do a multicollinearity test, and it is assumed that the model is

linear so there is no need to use the Baltagi model specification test in Gujarati & Dawn^[15]. Panel data is more likely to focus on the characteristics of cross-section data than time series, it is necessary to do homoskedasticity testing because the test usually occurs in cross-section data. In addition, the normality test is basically not a Best Linear Unbias Estimator requirement, in other words, panel data can minimize bias/deviation, while autocorrelation tests arise in the time series data problem and rarely occur in cross section data^[16,17]. Therefore, the classic assumption test used in this study is enough to test homoskedasticity.

III. RESULT AND DISCUSSION

In order to answer the purpose of this research regarding determinants in fighting poverty, especially the role of physical capital which is proxied by education and health in Central Java districts and cities using panel data regression analysis tools. The estimation results of panel data regression with Pooled Ordinary Least Square (PLS) approach, Fixed Effect Model (FEM), and Random Effect Model (REM) can be seen in table 2.

Table 2. Results of Panel Data Regression

Variable	Dependen: Poverty (POVR)		
	PLS	FEM	REM
Constan (C)	101,6849	235,2977	144,8988
Life Expectancy (AHH)	-0,9321	-2,7649	-1,5087
Old School Expectations (HLS)	-1,5379	-1,3259	-1,5779
Economic Growth (EG)	-0,0111	0,0232	0,0186
R ²	0,4625	0,9870	0,7192
F-Statistik	59,0986	352,9046	175,9578
Prob.F-Statistik	0,0000	0,0000	0,0000

Source: Statistics of Central Java Province (processed)

There are things that need to be considered in the selection of panel data regression models. If the best Chow test model is PLS and in the Hausman test selected the best model is REM, then the Langrange Multiplier test must be performed to determine the best estimation model between PLS and REM results.

Table 3. Model Selection

Effects Test	Statistic	d.f.	Prob.
Cross-section (F)	204,0618	(34,172)	0.0000***
Cross-section Random (Chi-square)	12.7145	3	0.0053***

Description: *** significant at α (0,01); ** significant for α (0,05); * significant at α (0,1)

Source: Statistics of Central Java Province (processed)

Based on table 3, the results of the Chow test and the Hausman Test, the right model used in this study is the Fixed Effect Model (FEM). To strengthen the selection of the model because the sample in this study was not taken randomly, FEM was more appropriate. According to Judge in Gujarati^[18], if the number of unit cross sections (N) is greater than the number of time-series (T) and individual units (cross-sections) of samples not taken randomly from a larger sample, the correct Fixed Effect Model (FEM) is used. The full estimation results are shown in table 4.

Table 4. Model Estimation of Fixed Effect Model and Homoscedasticity Test

$POVR = 235,2977 - 2,7649 AHH - 1,3259 HLS + 0,0232 EG$
(0,0000)*** (0,0000)*** (0,0000)*** (0,4428)
R ² = 0,9870; Adj-R ² = 0,9842 ; F-stat= 352,9046; Prob.F-stat= 0,0000***
Uji Homoskedastisitas (Glejser)
Prob.t AHH = 0,4142; Prob.t HLS = 0,8064; Prob.t EG= 0,3058

Description: *** significant at α (0,01); ** significant for α (0,05); * significant at α (0,1)

Source: Statistics of Central Java Province (processed)

Based on table 4 shows the fulfillment of goodness of fit and homoskedasticity. The fulfillment of goodness of fit in this study, among others, based on the model existence test shows that simultaneously physical model variables proxied by education and health, as well as economic growth variables, influence the poverty level in the regions. Central Java autonomous region during the observation period, while based on the determinant coefficient interpretation states that variations in poverty level variables can be explained by physical model variables proxied by education and health, and economic growth variables at 98.70 percent and the remaining 1.30 percent explained by factors others not included in the model.

Interesting findings in this study indicate that physical models have an important role in fighting poverty in autonomous regions in Central Java during the observation period. Based on the results of panel, education and health data regression which is a proxy for physical capital, it shows a significant negative effect on the poverty level.

Health, as measured by life expectancy, shows the level of health which includes both infrastructures, health facilities, access of the population to health services and environmental conditions which are easily accessible by the population, fulfillment of nutrition and vitamins for the community. The state must be present in ensuring the health of its population besides the mandate of the law also to increase the productivity of the population. Productivity will not be maximally achieved if the health facility is unable to compensate for the mobility and quantity of the population of a country. Another indication, in developing countries, especially in Indonesia, education is one way to get out of poverty. In the law, the government must allocate + 30% of state revenues to the education sector. Apart from that, education is a means of human development in order to create human capital so that it can compete with residents from other countries, especially from developed countries. With the diminishing reserves of natural resources, to create economic growth and quality economic development lies with superior and competitive human capital.

In addition, based on table 4 shows that the variable economic growth has no effect on poverty levels in the autonomous regions in Central Java during the observation period. Long debates have been carried out by economists about measuring economic growth as a macroeconomic indicator. Weaknesses in measuring economic growth are not included in the environment and multiplier effects that can cause negative externalities to the environment and the surrounding population from business activities in using natural resources etc. as a production factor. When a lot of exploitation of these resources can lead to greater gaps for people who have greater access to others. In developing countries more economic growth is supported by high consumption levels, this is also a concern because it is more prone to shocks caused by global influences.

IV. CONCLUSION

All efforts and development activities must be utilized to improve the welfare of the community, and the results achieved must be enjoyed equally by the entire community, so that it comes out of the circle of poverty. One of the efforts that can be done is by paying attention to physical capital. In this study physical capital has a very important role in overcoming poverty. The physical capital studied in this study is education and health. The results showed that education and health had a significant negative effect on poverty in autonomous regions namely Central Java districts and cities during the observation period, while economic growth had no significant effect.

Quality improvement for health facilities, it can be seen that the geographical location of Central Java Province consists of plains and mountains. Access to health facilities for people living in mountainous areas is still very minimal, so the government needs to improve facilities and access for residents living in mountainous areas. Not only that, the regional government provides the widest opportunity for the school-age population to be able to continue their studies to the undergraduate level, namely by being given scholarships to the sons of the region and sons and daughters from among those unable to support the central government. As well as developing campuses in the area to actively dive in the community by providing tiered education to the community.

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